

# ALCOA/LAVACA BAY TEXAS

EPA ID# TXD008123168

Site ID: 0601752

## EPA Region 6

CONGRESSIONAL DISTRICT 14

Calhoun County



Updated: September 17, 2004

## Site Description

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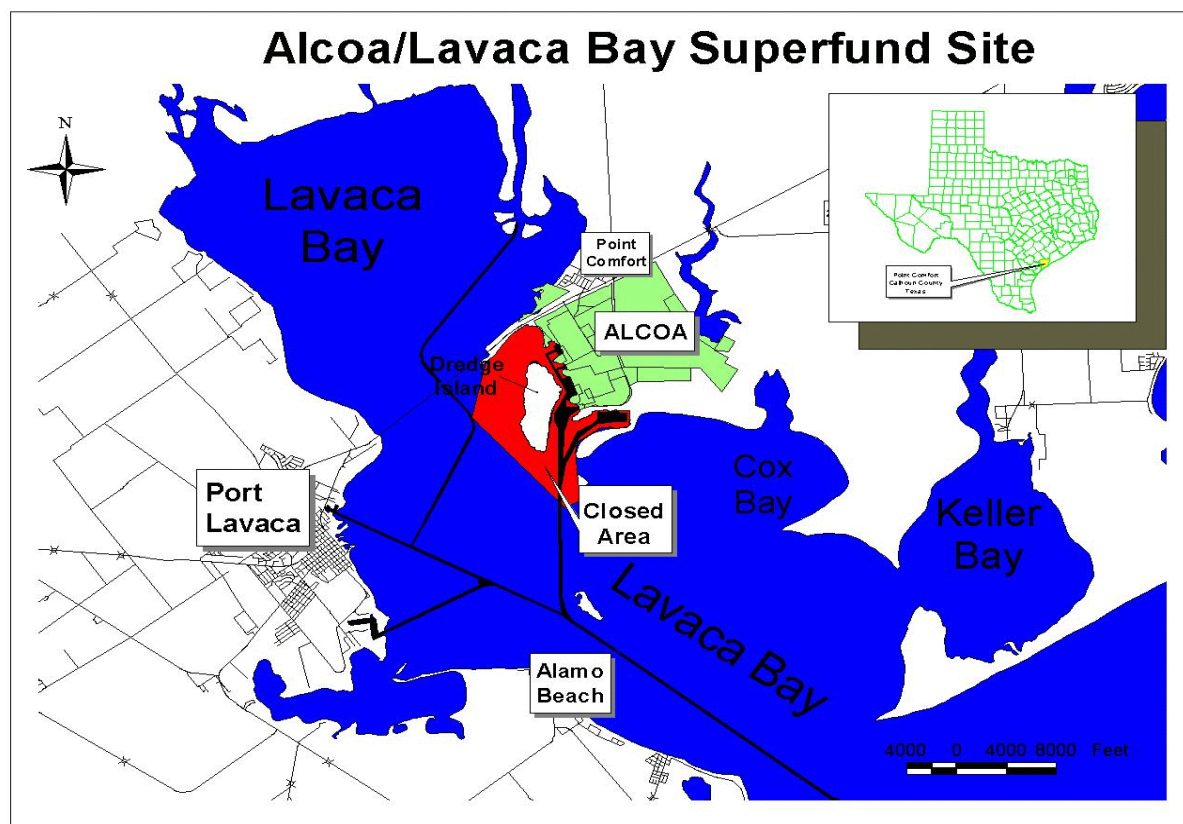
- Location:**
- The Aluminum Company of America (ALCOA) Point Comfort Operations (PCO) Plant is located in Calhoun county in southeast Texas near the City of Point Comfort. The Plant is bordered by Lavaca Bay on the west, Cox Creek/Cox Lake on the east, State Highway 35 on the northwest and industrial and agricultural areas on the north and northeast.
- Population:**
- Approximately 1,100 people live in Point Comfort, Texas and 10,000 people live in Port Lavaca, Texas.
- Setting:**
- The Site consists of the ALCOA PCO Plant, an associated dredge spoil island, and portions of Lavaca Bay, Cox Bay, Cox Creek, Cox Cove, Cox Lake and western Matagorda Bay.
  - The ALCOA PCO plant covers approximately 3,500 acres and the dredge spoil island is approximately 420 acres.
  - Lavaca Bay has a surface area of approximately 60 square miles and Cox Bay has a surface area of approximately 8 square miles. Cox Cove includes an extensive marsh area located in the northwestern portion of Cox Bay. There are several oyster reefs and oyster beds throughout the area. Marshes and wetlands are found at several locations in the vicinity of the Site.
- Hydrology:**
- The Beaumont Formation underlies the site and generally consists of a sequence of silty clays, sandy clayey silts, clays, and silty sands. The Formation is 200 to 300 feet deep in the Point Comfort area.
  - Three primary saturated sand and silt zones with intervening clay units have been identified in the upper 100 feet of the Beaumont beneath the site. The water table is generally 14 to 20 feet below the surface.
  - The Chicot Aquifer underlies the Beaumont Formation, and the base of the Chicot is at a total depth of 1,200.

- Potable water supplies in the area come from deep ground water wells since shallow ground water in the vicinity of the Site has typically not been developed due to high chloride and Total Dissolved Solids (TDS) content. No potable water wells are located at the ALCOA facility or in its immediate vicinity.

## Wastes and Volumes

- Chemicals of Potential Concern (COPCs) have been identified for the different areas investigated during the Remedial Investigation (RI). The major COPCs in Lavaca Bay sediments include mercury and Polycyclic Aromatic Hydrocarbons (PAHs).
- As part of a non-time critical removal action on the dredge disposal island, Alcoa relocated approximately 523,000 cubic yards of mercury-contaminated dredge spoils into a fortified on-island disposal area. In addition, approximately 93,000 cubic yards of mercury-contaminated soils were removed from the island and placed in the fortified on-island disposal area.
- During a treatability study, Alcoa dredged and disposed of approximately 80,000 cubic yards of mercury-contaminated sediments. It is estimated that approximately 2,300 pounds of mercury were removed from the Lavaca Bay system.

## Site Map and Diagram



## Site Assessment and Ranking

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### NPL LISTING HISTORY

Site HRS Score: 30.67

Proposed Date: 6/23/93

Final Date: 2/23/94

NPL Update: No. 15

## The Remediation Process

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### Site History:

- The PCO Plant began operation as an aluminum smelter utilizing alumina as the raw material to produce aluminum metal. The smelter operated from 1948 until 1980.
- The plant is currently an alumina refining operation that utilizes bauxite ore to produce alumina.
- From 1966 into the 1970s, ALCOA operated a chlorine-alkali plant which produced chlorine gas and sodium hydroxide. Part of the process involved the use of a mercury cathodes. Waste water containing mercury was discharged into Lavaca Bay through outfalls located on an off-shore gypsum lagoon located on Dredge Island. Dredge spoils, contaminated with mercury, were disposed of in several areas on the site. Bay sediments are now contaminated with the waste mercury.
- The oil and gas refining and power generation at the Neumin Gas Plant was operated by ALCOA from approximately 1958 to 1988. ALCOA sold the Neumin Gas Plant and the land upon which it is constructed to Formosa Plastics.
- A metal plating operation was also operated but is now inactive.
- Witco Chemical Corporation began operations in 1964 on approximately 7 acres located within the boundaries of the Plant. Witco processed coal tar for the manufacture of electrode binder pitch and creosote. Operations were discontinued in December 1985.
- In March 1994, EPA and Alcoa signed an Administrative Order on Consent for Alcoa to conduct a remedial investigation, risk assessment, and feasibility study for the site.
- Sampling conducted for the Remedial Investigation (RI) has been completed. Major sampling conducted during the RI includes the evaluation of sediments and surface water in the "Closed Area" of Lavaca Bay and the remainder of Lavaca Bay (including Cox Lake, Cox Marsh, and portions of Western Matagorda Bay) as well as sampling and analysis of finfish, shellfish and prey items from Lavaca Bay. A focused investigation in the former Witco area has been completed. The primary contaminants of concern for the bay system include mercury and polycyclic aromatic hydrocarbons (PAHs).
- A focused investigation to evaluate the nature and extent of contamination in the former chlor-alkali process area (CAPA) has been completed. A groundwater treatability study is being conducted at CAPA to evaluate if pumping and treating groundwater will effectively prevent migration of groundwater into Lavaca Bay.
- A surface soil investigation was completed at a number of Potential Source Areas on the plant/mainland area of the site. A groundwater reconnaissance investigation was also conducted to evaluate if the groundwater is contaminated from operations at the Potential Source Areas.

- A focused investigation has been completed at the former Site I Landfill. Results of the focused investigation concluded that there are no completed exposure pathways present from the Site I Landfill to receptors in Cox Marsh.
- A perimeter ground water monitoring well network was installed and samples were collected to evaluate whether contaminants are present at the perimeter of the plant or could migrate offsite from the Alcoa PCO facility.
- An Engineering Evaluation/Cost Analysis (EE/CA) that presents removal action alternatives to protect the Dredge Island in the event of a severe storm was released for public comment beginning August 6, 1997. A public information meeting was held by EPA on July 29, 1997 to discuss the Dredge Island fortification project. The public comment period ended on September 22, 1997. The Action Memorandum, which selects the removal action alternative, was signed by EPA on April 30, 1998. The design of the selected removal action alternative is complete and construction activities should be completed in summer 2001.
- The Remedial Investigation (RI) report and Baseline Risk Assessment (BLRA) have been approved. The RI report presents the findings on the nature and extent of contamination at the site while the BLRA evaluates the risk to human health and the environment.

#### Health Considerations:

- In April 1988, the Texas Department of Health (TDH) issued an order prohibiting the taking of finfish and crabs from a specific part of Lavaca Bay ("Closed Area") due to levels of mercury in fish tissue above Food and Drug Administration standards. In January 2000, the TDH reduced the size of the "Closed Area" based on reductions of mercury concentrations in fish tissue. The "Closed Area" is presented on the above site map.
- A Baseline Risk Assessment (BLRA) was submitted by Alcoa and approved by EPA. The BLRA evaluates risk to human health and the environment.

## Record of Decision

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Record of Decision signed December 20, 2001

The major components of the Selected Remedy include:

#### Bay System

- **Extraction and Treatment of Chlor-Alkali Process Area (CAPA) Ground Water** - CAPA ground water will be hydraulically controlled by a series of four extraction wells. Treatment of the extracted ground water will be performed by aeration using an air stripper, followed by carbon adsorption for mercury removal. The treated ground water will be discharged to Lavaca Bay.
- **Installation of a DNAPL Collection or Containment System at the Witco Area** - West of the former Witco Tank Farm Area, a collection trench or containment system will be installed for the purpose of intercepting DNAPL potentially migrating to Lavaca Bay. Recovered DNAPL will be collected and sent off site for treatment and disposal at a licensed disposal facility. The DNAPL will not be treated or stabilized on site prior to off site disposal. The specific areas of shoreline to be addressed by a remedy may be modified based on site conditions observed during remedy implementation. The use of

either a DNAPL containment or collection technology will be refined during the remedial design.

- **Dredging of the Witco Channel** - approximately 200,000 cubic yards of mercury-contaminated sediment will be dredged and disposed of in an on site confined disposal facility located on Dredge Island. The dredged sediments will not be treated or stabilized before disposal. A final cover for the disposal areas will consist of dredged material taken from an area of Lavaca Bay that has mercury concentrations below human health and ecological risk-based values.
- **Remediation of the Witco Marsh by Dredging or Filling** - the Witco Marsh would be actively remediated to address the concern of biological uptake of mercury. The decision to dredge or fill the marsh will be made in the remedial design.
- **Enhanced Natural Recovery North of Dredge Island** - the areas north of Dredge Island would receive a thin cap over the entire area to accelerate the natural recovery process currently observed occurring in Lavaca Bay.
- **Natural Recovery of Sediments** - sediments that are not actively remediated will recover to acceptable levels through natural sedimentation. It is estimated that surficial sediment mercury levels in all areas are expected to decline to levels in the current range of open areas of the Bay within a 5 to 10 year time frame.
- **Institutional Controls to Manage Exposure to Finfish/Shellfish** - the fish closure originally established by the Texas Department of Health in 1988 and updated in January 2000 will remain in place to control the consumption of finfish and shellfish for the "Closed Area".
- **Monitoring** - long term monitoring of sediments and fish will be required to confirm the natural recovery of sediment and fish tissue to acceptable levels. In addition, monitoring of surface water will be conducted to evaluate the effectiveness of the CAPA hydraulic containment system. Full details of the monitoring program will be established during the design of the selected Bay System remedy.

#### Chlor-Alkali Process Area Soils

- **Building R-300 Removal** - the walls and roof of Building R-300 will be removed and hauled off-site.
- **Capping of Building R-300 Area** - The building slab and the area immediately west of Building R-300 will be capped with a clay sublayer covered by crushed rock.
- **Institutional Controls to Manage Exposure to Soil** - Excavation of any soils below or immediately west of Building R-300 would only be permitted after a worker safety program is developed for the specific excavation activity and repair of the cap would be required after excavation. The Building R-300 area would be deed recorded as containing soils with elevated mercury levels.

#### Former Witco Area Soils

- **Capping** - the Stormwater Sump and Separator Area and Former Tank Farm Area will be capped with soil caps
- **Institutional Controls to Manage Exposure to Soil** - future excavation of any soils in these areas would only be permitted after a worker safety program is developed for the specific excavation activity and repair of the cap would be required after excavation.

These areas would be deed recorded as containing soils with elevated PAH concentrations.

## Community Involvement

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- Community Involvement Plan: 1/95
- Open houses and workshops: 8/93, 4/94, 9/94
- Milestone EPA Fact Sheets: 8/93, 4/94
- Proposed Plan Fact Sheet: June 21, 2001
- Proposed Plan Public Meeting: June 28, 2001.
- Proposed Plan Public Comment Period: June 21 - August 29, 2001
- ROD Fact Sheet:
- ALCOA (PRP) Community Involvement Plan: Draft 6/94, Final 1/95.
- Citizens on EPA site mailing list: 364
- Constituency Interest: A Community Advisory Group was established by ALCOA and meets on an as needed basis.

- Site Repositories:  
Calhoun County Public Library  
200 West Mahan  
Port Lavaca, TX 77979  
(361) 552-7323

## Technical Assistance Grant

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- Availability Notice: 8/93, 4/94
- Letters of Intent Received: 5/29/95: Calhoun County Resource Watch
- Grant Award: Denied

## Contacts

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- **Project Manager (EPA):** Gary A. Baumgarten, 214-665-6749, Mail Code: 6SF-AP
- **State Contact (TCEQ):** Robert Wucher, 512-239-2494, Mail Code: 143
- **Community Involvement:** Gary A. Baumgarten, 214-665-6749, Mail Code: 6SF-AP
- **Attorney (EPA):** Pamela Travis, 214-665-8056, Mail Code: 6RC-S
- **State Coordinator (EPA):** Karen Bond, 214-665-6682, Mail Code: 6SF-AP
- **Regional Public Liaison (EPA):** Arnold Ondarza, 303-312-6777
- **Prime Contractor:**

## Enforcement

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- Administrative Order on Consent issued to Alcoa to conduct a remedial investigation, risk assessment, and feasibility study (RI/FS) and possibly perform expedited response/removal actions - 3/31/94

## **Present Status and Issues**

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- The Record of Decision was signed on December 20, 2001.
- EPA is negotiating a Consent Decree with Alcoa under which the cleanup requirements presented in the ROD will be implemented.

## **Benefits**

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- Cleanup measures should eventually result in the Texas Department of Health rescinding the Fish Closure order. This would enable the community to keep fish and shellfish from all areas of Lavaca Bay.